barrier. Materials used in the fabrication of the cargo containment and handling system shall satisfy the requirements for toughness specified in subchapter F (Marine Engineering) of this chapter.

(d) Cargo tank spaces are to be isolated from the remainder of the vessel by cofferdams in accordance with §32.60–10 of this subchapter. In a non-pressure vessel configuration, the void between the primary and secondary barriers shall not be acceptable as the required cofferdam between the tank spaces and the main machinery spaces.

(e) Compartments containing cargo tanks or pipes shall be accessible from the weather deck only. No openings from these compartments to other parts of the vessel are permitted.

(f) Barges utilized for the carriage of liquefied gases shall be of Type II barge hull as defined in §32.63–5(b)(2) of this subchapter. The Commandant may, based on the properties of the liquefied gas to be carried, require a Type I barge hull, as defined in §32.63–5(b)(1) of this subchapter, to ensure the hull is consistent with the degree and nature of the hazard of the liquefied gas to be carried.

[CGFR 66–33, 31 FR 15269, Dec. 6, 1966, as amended by CGFR 68–82, 33 FR 18806, Dec. 18, 1968; CGFR 68–65, 33 FR 19985, Dec. 28, 1968; CGFR 70–10, 35 FR 3709, Feb. 25, 1970]

§38.05–2 Design and construction of cargo tanks—general—TB/ALL.

(a) The maximum allowable temperature of the cargo is defined as the boiling temperature of the liquid at a pressure equal to the setting of the relief valve.

(b) The service temperature is the minimum temperature at which cargo is loaded and/or transported in the cargo tank. However, the service temperature shall in no case be taken higher than given by the following formula:

$$t_s = t_w - 0.25(t_w - t_b) \qquad (1)$$

where:

t_s=Service temperature.

t_w=Boiling temperature of gas at normal working pressure of tank but not higher than +32 °F.

t_b=Boiling temperature of gas at atmospheric pressure.

(c) Heat transmission studies, where required, shall assume the minimum ambient temperatures of 0° F. still air and 32° F. still water, and maximum ambient temperatures of 115° F. still air and 90° F. still water.

(d) Cargo tanks in vessels in ocean; Great Lakes; lakes, bays, and sounds; or coastwise service shall be designed to withstand, simultaneously, the following dynamic loadings:

(1) Rolling 30° each side (120°) in 10 seconds.

(2) Pitching 6° half amplitude (24°) in 7 seconds.

(3) Heaving *L*/80′ half amplitude (*L*/20′) in 8 seconds.

(e) Cargo tanks on barges shall be designed in accordance with §32.63–25 of this subchapter.

(f) Each liquefied flammable gas tank shall be provided with not less than a 15-inch by 23-inch or an 18-inch nominal diameter manhole fitted with a cover located above the maximum liquid level and as close to the top of the tank as possible. Where access trunks are fitted to the tanks, the nominal diameter of the trunks shall be not less than 30 inches.

(g) Cargo tanks vented above 10 pounds per square inch gage shall be of the pressure vessel type.

§38.05–3 Design and construction of pressure vessel type cargo tanks—TB/ALL.

(a) Cargo tanks of pressure vessel configuration (e.g. cylindrical, spherical, etc.) shall be designed, fabricated, inspected, and tested in accordance with the applicable requirements of part 54 of subchapter F (Marine Engineering) of this chapter, except as otherwise provided for in this part.

(b) The requirements of this section anticipate that cargo tanks constructed as pressure vessels will, by themselves, constitute the cargo containment system and usually will not require a secondary barrier.

(c) In the design of the tank, consideration shall be given to the possibility of the tank being subjected to external loads. Consideration shall also be given to excessive loads that can be imposed on the tanks by their support due to static and dynamic forces under operating conditions or during testing. The